

Docket No.: GR 98 P 5874 P

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By: 

Date: November 7, 2001

UNITED STATES IN THE PATENT AND TRADEMARK OFFICE

Applicant : Daniel Reznik
Applic. No. : 09/873,227
Filed : June 4, 2001
Title : Power Semiconductor Switch

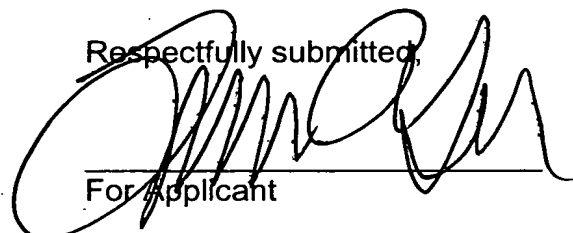
LETTER

Hon. Commissioner of Patents and Trademarks,
Washington, D. C. 20231

Sir:

Enclosed please find a copy of the English translation of the International Preliminary Examination Report for the above-identified application. Please enter it into the file.

Respectfully submitted,

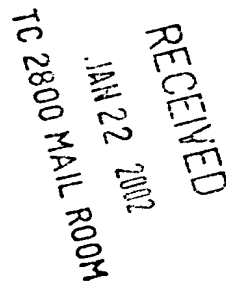
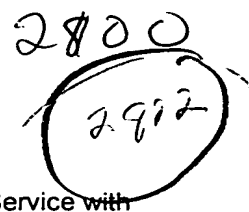
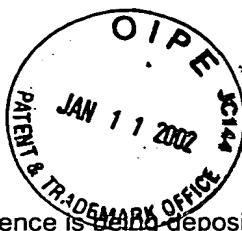

For Applicant

LAURENCE A. GREENBERG
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Date: November 7, 2001

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/bmb



From the INTERNATIONAL BUREAU

PCT
NOTIFICATION OF TRANSMITTAL
OF COPIES OF TRANSLATION
OF THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 72.2)

To:

VIERING, Hans-Martin
Viering, Jentschura & Partner
Steinsdorfstrasse 6
80538 München
ALLEMAGNE

ANWALTSKANZLEI
VIERING & JENTSCHURA

30. Juli 2001

Date of mailing (day/month/year) 19 July 2001 (19.07.01)	
Applicant's or agent's file reference P 20114	IMPORTANT NOTIFICATION
International application No. PCT/DE99/03836	International filing date (day/month/year) 01 December 1999 (01.12.99)
Applicant INFINEON TECHNOLOGIES AG et al	

1. Transmittal of the translation to the applicant.

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

2. Transmittal of the copy of the translation to the elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

JP,US

The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

EP

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer Maria Kirchner Telephone No. (41-22) 338.83.38
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Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P 20114	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE99/03836	International filing date (day/month/year) 01 December 1999 (01.12.99)	Priority date (day/month/year) 04 December 1998 (04.12.98)
International Patent Classification (IPC) or national classification and IPC H01L 29/739		
Applicant INFINEON TECHNOLOGIES AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.	
2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.	
<input type="checkbox"/>	This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
These annexes consist of a total of _____ sheets.	
3. This report contains indications relating to the following items:	
I <input checked="" type="checkbox"/>	Basis of the report
II <input type="checkbox"/>	Priority
III <input type="checkbox"/>	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV <input type="checkbox"/>	Lack of unity of invention
V <input checked="" type="checkbox"/>	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI <input type="checkbox"/>	Certain documents cited
VII <input checked="" type="checkbox"/>	Certain defects in the international application
VIII <input type="checkbox"/>	Certain observations on the international application

Date of submission of the demand 04 July 2000 (04.07.00)	Date of completion of this report 09 March 2001 (09.03.2001)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/DE99/03836

I. Basis of the report

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

- ☐ the international application as originally filed.
- ☒ the description, pages 1-4, as originally filed,
 pages _____, filed with the demand,
 pages _____, filed with the letter of _____,
 pages _____, filed with the letter of _____.
- ☒ the claims, Nos. 1-2, as originally filed,
 Nos. _____, as amended under Article 19,
 Nos. _____, filed with the demand,
 Nos. _____, filed with the letter of _____,
 Nos. _____, filed with the letter of _____.
- ☒ the drawings, sheets/fig 1, as originally filed,
 sheets/fig _____, filed with the demand,
 sheets/fig _____, filed with the letter of _____,
 sheets/fig _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims		YES
	Claims	1, 2	NO
Inventive step (IS)	Claims		YES
	Claims	1, 2	NO
Industrial applicability (IA)	Claims	1, 2	YES
	Claims		NO

2. Citations and explanations

The following explanations concern the Boxes II-VIII checked in the cover sheet.

1. This report makes reference to the following documents:

D1: EP-A-0 837 508 (HITACHI, LTC.), 22 April 1998
(1998-04-22)

D2: MORI M. ET AL.: "A NOVEL HIGH-CONDUCTIVITY IGBT (HIGT) WITH A SHORT CIRCUIT CAPABILITY", INTERNATIONAL SYMPOSIUM ON POWER SEMICONDUCTOR DEVICES & IC'S, US, NEW YORK, NY: IEEE, 3 June 1998 (1998-06-03), pages 429-432, XP000801108, ISBN: 0-7803-4752-8.

2. The application does not meet the requirements of PCT Article 6 because Claims 1 and 2 are not clear. As a result, the present application also fails to meet the requirement of PCT Article 33(2) because the subject matter of Claims 1 and 2 is not novel.

The thickness and doping of the first buffer layer (2), and in particular the thickness and doping of the second buffer layer (6), are defined by means of

a functional indication.

There is no doubt that all the features mentioned until line 23 of Claim 1 are explicitly known from D1 and D2.

Moreover, it is assumed that the layers in D1 and D2 which correspond to layers 1 and 2 are also sized in such a way that the layer which corresponds to layer 1 is cleared of charge carriers in the off-state, as this is usual in the case of such IGBTs with punch-through dimensions, and is regarded as prior art even by the applicant himself (see page 3, lines 4-16). Consequently, the additional features of the preamble of Claim 1 would also be known from D1 and D2.

The characterising feature in lines 32-36 of Claim 1 is evidently also known from D1 and D2.

In view of the functional definition of the above-mentioned characterising feature on the second page of Claim 1, there is not the slightest doubt that any IGBT will block, even when voltage polarisation corresponds to the on-state, due to the internal pn transition operated in the blocking direction. The IGBT becomes conductive only when a corresponding gate voltage is applied (which is the typical operating form) or when a particular breakthrough voltage is exceeded.

Consequently, the functional definition of the above-mentioned characterising feature also applies to the devices of D1 and D2.

It is clear that D1 and D2 do not disclose bidirectional switches, as stated by the applicant. However, no such switch is claimed either.

3. Contrary to PCT Rule 5.1(a)(ii), the description does not cite documents **D1 and D2** and does not indicate the relevant prior art disclosed therein. Pursuant to PCT Rule 6.3(b), the correct two-part form in relation to the closest of those documents should have been used.